

## **Plant Inventory at Fort Laramie National Historic Site.**

### **PRINCIPLE INVESTIGATOR:**

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### **PROJECT STATEMENT:**

Fort Laramie National Historic Site (NHS) lies near the western edge of the Great Plains. The park contains native and restored grasslands, marshy areas, and floodplain forests. A list of plant species documented at the park has been compiled by the Wyoming Natural Heritage Program (Fertig 2001). Only 179 species are on the list (approximately 60% of the expected species); experts at a scoping workshop indicated that species may have been missed from early and late in the growing season and that past studies may have had insufficient sampling in wetland areas. To rectify these deficiencies, additional field work is needed, with an emphasis on early and late growing season and wetland vascular plants.

A detailed justification for the project is described in the Northern Great Plains Inventory Study Plan (Study Plan). The Principle Investigator should review the Study Plan before conducting field work. The Principle Investigator or people working on her behalf are required to contact park staff prior to conducting field work at the park (contact the Northern Great Plains I&M Network Coordinator or see the Study Plan for a list of park contacts).

Appendix F of the Study Plan lists the vascular plant species documented at the park, and the species expected to be there but not yet documented. The primary purpose of the proposed field inventory is to document those species not yet documented at the park, however, it is expected that the field inventory will also verify the current presence of already-documented species (Fertig 2000), provide information on relative abundance, provide distribution information on endangered or threatened species or species of concern, and collect voucher specimens.

### **OBJECTIVES:**

- Conduct the inventory in a way that at least 90% of the vascular plant species occurring at the park are documented in a scientifically credible manner.
- Make a qualitative assessment of the abundance of each species.
- Record the location and distribution of species listed as endangered, threatened, or species of concern by the federal government or the State of Wyoming.
- Collect voucher specimens for each species (excluding rare species: see methods).

### **METHODS:**

The investigator(s) will walk all 16 habitat types in the park (see the vegetation map produced for the park [TNC 1997 <http://biology.usgs.gov/npsveg/fola/folaveg.gif>]), including nearby areas administered by the Bureau of Land Management but managed by the park. The investigator(s) will use standard floristic inventory procedures to identify and document all vascular plant species observed. Identification shall be to the species level at a minimum. A minimum of 8 (8-hour) days shall be spent in the field. At least 2 days of field work shall occur in May and September (combined), 2 days shall survey rare species, and 4 days shall survey wetland and weed species in the latter half of summer.

An estimate of abundance shall be made for all plant species observed. The categories to use shall be; abundant, common, uncommon, rare (contact the I&M Coordinator for definitions). This assessment is expected to be qualitative and subjective based on the observations of the investigator(s) while conducting the field work.

GPS locations (using UTM coordinates and NAD 83) will be recorded for species listed as endangered, threatened, or species of concern by either the federal government or the State of Wyoming. Locations can be at the individual level (i.e., points) or the population level (polygons) depending on the density of the plants. Special emphasis shall be made to locate all individuals/populations of endangered, threatened, or species of concern.

A voucher specimen will be collected for all species except for federal or state-listed endangered or threatened species; however, the investigator(s) shall get permission from park staff prior to collecting species that are rare in the park, on the State of Wyoming species of concern list, or where collection will have harmful affects in the judgement of the investigator(s). Voucher specimens shall be collected and prepared using standard botanical collection protocols. Standard metadata for botanical collections shall be recorded for all vouchers. Specimens are the property of the National Park Service,. At the discretion of the park duplicates can be collected for the Rocky Mountain Herbarium; however, they remain the property of the National Park Service.

Notes shall be taken on areas not surveyed (if any) and why they were not surveyed. Notes shall be taken on factors that may have affected the completeness of the field work (e.g., recent burns, herbicide applications, high water). The Final Report shall include specific management recommendations the park should consider for management of healthy natural ecosystem, in terms of plant species diversity, noxious weeds, and rare species.

The principle investigator is expected to participate in 75% of the fieldwork or to provide names and qualifications of individuals who will be conducting the fieldwork prior to the work being started.

#### NATIONAL PARK SERVICE INVOLVEMENT:

The National Park Service will provide substantial assistance and involvement in the project. Specifically, Fort Laramie NHS will contribute a minimum of two days of assistance by a biological technician in the collection of field data and/or the processing of plant specimens. The park resource manager is expected to contribute a half a day in showing the investigator(s) the park, discussing relevant management issues, and informing the investigator(s) of operational logistics and considerations. Staff of the Northern Great Plains I&M Program will enter the final data from the study into NPSpecies, the Dataset Catalog, the GIS Clearinghouse, and other national and Network datasets. Staff of the Network and/or the park will enter specimen data into ANCS+. The park will provide office space for the study. Although NPS involvement per se, a USGS-BRD plant ecologist who is located with the Northern Great Plains I&M Program has committed to two days of assisting in the project as well.

#### PRIMARY REFERENCES:

Fertig, W. 2000. Rare plants of Fort Laramie NHS. Wyoming Natural Diversity Database. Report prepared for the 2000 scoping session.

Fertig, F. 2001. Known and potential vascular plant flora of Fort Laramie National Historic Site. Wyoming Natural Diversity Database, Laramie.

#### PRODUCTS:

- Four hard copies of a Final report in standard scientific format including an introduction, detailed methodology, results, and discussion. Analysis of the completeness of the surveys should be included in the reports. Management recommendations shall be explicitly stated in the discussion section. A copy of the report shall also be submitted in MS Word format.
- An Excel file with a list of plant species documented and their relative abundance.
- A Progress Report by December 31 of 2003 should the project not be completed by that date. The Progress Report shall describe work completed in 2003 and a schedule of work for 2004.
- Original field notebooks, notes, and photographs along with accompanying documentation.
- Voucher specimens.

(Note – Data entry into NPSpecies, NPBIB, the Dataset Catalog, and ANCS+ will be performed by the Network Coordinator and/or the Network Data Technician.)

**PROJECT SCHEDULE:**

*May-September 2003.* Conduct field studies.

*May-September 2003.* Conduct field studies (if necessary).

*December 31 2004.* Deadline for Principle Investigator to submit to the NGP Network Coordinator all products identified above (unless otherwise directed by the NGP Network Coordinator).

**BUDGET:**

Expense	FY03	FY04	Total
Principle Investigator (120 Hours @ \$22.00/hr)	2640		2640
Consultant *	1000		1000
Technician (48 Hours @ \$16.00/hr)	640		640
Supplies (phone, film, printing)	220		220
Transportation 1200 miles (\$0.34 per mile)	410		410
Lodging and per diem	~		~
Overhead (15%)	736		736
Total	5646		5646

\* For time and travel for a botanist who lives nearby and is knowledgeable of the park and it's flora.